



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

metathorax one-half as long as prothorax at middle. Wing pads of meso- and metathorax extending beyond anterior margin of third abdominal segment. Rostrum extending to between second pair of legs. Sexes distinguishable in this stage. Hairs of legs more pronounced. Markings of dark forms similar to those of preceding stage.

*Fifth Nymphal Stage*.—Length 4.6 mm. Width of head including eyes 1.5 mm. Shape somewhat similar to that of fourth stage, more elongate. Dark markings less pronounced, except dark band on vertex of head. Antennæ one-half width of head. Head similar to that of preceding stage, more or less slightly sinuate in front. Front and vertex finely pubescent. Pronotum at middle one and one-half times the length of the head, transversely grooved on posterior dorsal surface. Mesonotum extending posteriorly at middle where it is broadly rounded, somewhat longer than pronotum. Metanotum one-half length of pronotum. Wing pads of meso- and metathorax extending to third abdominal segment. Rostrum similar to that of fourth stage. Hairs on body more pronounced than in preceding stage.

---

## RECORDS AND DESCRIPTIONS OF NEOTROPICAL CRANE-FLIES (TIPULIDÆ, DIPTERA). I.

BY CHARLES P. ALEXANDER,

URBANA, ILL.

During the past few years a number of collections of crane-flies from various localities in South and Central America have been available for study. Some of the more interesting new species are discussed in the present article. In addition, the records of a few species whose known range is greatly extended are also given, most of them being South American forms that are now admitted to the North American Fauna for the first time.

The collections studied in this paper are as follows:

ARGENTINA, a small lot from Catamarca, through the kindness of Señor Pedro Jorgensen-Hansen.

COLOMBIA, a small collection from the Santa Marta region, taken

by Messrs. E. B. and J. H. Williamson (see A Collecting Trip to Colombia, South America, by E. B. Williamson: Misc. Publ. 3, Mus. Zööl., Univ. of Mich.; 1918).

COSTA RICA and PANAMA, several fine lots of specimens taken by Dr. Axel Olsson.

In addition to the above, considerable material was studied in the collections of the American Museum of Natural History, mostly from the Greater Antilles and British Guiana; the United States National Museum from Chile (Porter), Panama (Busck and Zetek), etc., and in the collection of Mr. Charles W. Johnson from the Lesser Antilles (Ballou). I am greatly indebted to all the gentlemen mentioned for the privilege of examining this material. Unless stated to the contrary, the types are in the collection of the writer.

Genus *Dicranomyia* Stephens.

*Dicranomyia porteri* new species.

Antennæ dark throughout; mesonotal præscutum with the stripes confluent, shiny brown; pleura grayish; abdomen dark brown, yellowish at the end; wings pale grayish with indistinct darker seams along the cord; vein  $Sc$  short,  $Sc_2$  at the tip of  $Sc_1$ , cell 1st  $M_2$  closed.

*Female*.—Length, 6–6.5 mm.; wing, 6–6.6 mm.

Rostrum and palpi blackish. Antennæ short, dark brown throughout, the flagellar segments short-oval. Head dark brown, gray pruinose, the vertex between the eyes very narrow.

Mesonotum rather shiny brown, the usual three præscutal stripes confluent; humeral region and the lateral margins of the præscutum pruinose; scutellum and postnotum sparsely gray pruinose. Pleura pale brown, gray pruinose. Halteres short, pale at the base and on the knobs, the stem brown. Legs with the coxæ and trochanters brownish-yellow; remainder of the legs light brown. Wings broad with a slight grayish tinge; stigma large, pale gray; indistinct and very pale gray clouds on the disk, darkest at the tip of  $Sc_1$  and the origin of  $Rs$ , paler and broader along the cord and the outer end of cell 1st  $M_2$ . Venation:  $Sc$  short, ending opposite the origin of the sector;  $Sc_2$  at the tip of  $Sc_1$ ;  $r$  at the tip of  $R_1$ ;  $Rs$  strongly arcuated to almost square at its origin, about one-half longer than the deflection of  $R_{4+5}$ ; cell 1st  $M_2$  large, closed, pentagonal to rectangular; basal reflection of  $Cu_1$  inserted just before the fork of  $M$ .

Abdomen blackish-brown, the seventh to ninth segments and the valves of the ovipositor conspicuously yellow.

Habitat: Chile.

Holotype, ♀, Antofagasta, May, 1912 (Carlos E. Porter).

Paratopotypes, 3 ♀♀.

Type in the collection of the U. S. National Museum.

**Dicranomyia jorgenseni** new species.

Antennæ black; head gray; thoracic præscutum with five chestnut-brown stripes, the three intermediate narrow; pleura gray with a narrow brown stripe; femora yellowish with a narrow dark brown subterminal ring; wings subhyaline with dark brown spots, apex of the wings darkened; *Sc* short, *Sc*<sub>2</sub> at the tip of *Sc*<sub>1</sub>.

*Male*.—Length, about 5.5 mm.; wing, 7.4 mm.

*Female*.—Length, 6.5–6.9 mm.; wing, 7–7.6 mm.

Rostrum and palpi dark brown. Antennæ dark brownish-black. Head light gray.

Mesonotal præscutum with a pale brownish-gray bloom; lateral margins of the sclerite dark brown; thoracic stripes narrow, chestnut-brown, the middle stripe ending far before the suture; the sublateral stripes cross the suture and appear as a narrow stripe on the proximal third of the scutal lobes; remainder of the scutum and the scutellum light grayish; postnotum dark brown with a sparse gray bloom. Pleura grayish with two brown longitudinal stripes, the sternal stripe broader, the dorsal stripe beginning just above the fore coxa. Halteres yellow, the knobs dark brown. Legs with the coxæ and trochanters light yellow; femora yellow with a dark brown subterminal ring, this being two or three times as wide as the pale tip; tibiæ yellowish-brown, darker at the tips; tarsi light brown, the terminal segments darkened. Wings grayish subhyaline with a heavy brown pattern, arranged as follows: at the arculus; in cell *R* midway between the arculus and the origin of the sector; stigmal blotch enclosing a rounded hyaline spot before crossvein *r*; tip of the wing in cells *2d R*<sub>1</sub>, *R*<sub>3</sub>, *R*<sub>5</sub> and *2d M*<sub>2</sub>; narrow seams along the cord and outer end of cell *1st M*<sub>2</sub>; a rounded spot at the tip of the second anal vein. Venation (Plate I, Fig. 3): *Sc* short, ending just beyond the origin of *Rs*; *Sc*<sub>2</sub> at the tip of *Sc*<sub>1</sub>; *Rs* almost square at its origin; basal deflection of *Cu*<sub>1</sub> some distance before the fork of *M*.

Abdomen dark brown, the sternites paler medially.

Habitat: Argentina.

Holotype, ♂, Esquina Grande, Catamarca, May 1, 1915 (P. Jorgensen).

Allotopotype, ♀.

Paratype, ♀, Cerro de Carocal, Catamarca, altitude 3100 meters, February 17, 1915 (P. Jorgensen).

The types bear the label "common on the rivers."

**Dicranomyia parishii** Alex.

1914. *Dicranomyia parishii* Alex.; Trans. Am. Ent. Soc., Vol. 40, pp. 226, 227.

Two specimens from Gatun, Canal Zone, Panama, December 12–14, 1912 (Zetek). The species has been recorded only from British Guiana.

**Dicranomyia apicata** Alex.

1914. *Dicranomyia apicata* Alex.; Trans. Am. Ent. Soc., Vol. 40, pp. 225, 226, Plate 3, Fig. 1.

Two specimens from Gatun, Canal Zone, Panama, December 12-14, 1912 (Zetek). The species has been recorded only from British Guiana.

**Dicranomyia fumosa** (Alex.).

1912. ?*Furcomyia fumosa* Alex.; Can. Ent., Vol. 44, p. 364, Plate 11, Fig. t.

One female from the Rio Chico, near the mouth of the Rio Porcona, Department of Panama, Panama, August 4, 1918 (Olsson). Like the two preceding species this interesting fly had been known hitherto only from British Guiana.

**Genus Peripheroptera** Schiner.**Peripheroptera subandina** new species.

Antennæ black; mesonotum yellow, the præscutum with three dark brown stripes; legs dark brownish-black; wings pale grayish, the center of the disk almost hyaline, a broad brown seam along the cord.

*Male*.—Length, about 6.5 mm.; wing, 9.4 mm.

Fore leg, femur, 5.8 mm.; tibia, 6.4 mm.; middle leg, femur, 6.5 mm.; tibia, 6.7 mm.

Rostrum and palpi dark brown. Antennæ black, the flagellar segments oval. Head dark brown; a golden line along the inner margin of the eye and passing across the front; a pale area on either side of the middle line of the vertex.

Pronotum dark brown, laterally yellowish-gray pruinose. Mesonotal præscutum yellow pollinose with three dark brown stripes, the median stripe very broad, becoming obsolete and bifid before the suture, the lateral stripes short and narrow; scutum with the median area broadly golden-yellow and with a sharp median carina, remainder of the lobes dark brown; scutellum reddish with a golden yellow pollen; postnotum dark brown with a yellowish V-shaped area. Pleura brownish-yellow, more grayish underneath the wing-root, more brownish on the mesosternum. Halteres dull yellow, knobs dark brown. Legs with the coxæ and trochanters dull brownish-yellow; femora dark brownish-black, paler on the basal third; tibiæ and tarsi black. Wings with a pale grayish suffusion; the center of the disk, including the bases of cells  $R_3$ ,  $R_5$ , 1st  $M_2$  and the ends of cells  $R$  and  $M$  more nearly hyaline; costal region more brownish-yellow; stigma dark brown; a broad brown seam along the cord and a less distinct seam along the outer end of cell 1st  $M_2$ . Venation (Plate I, Fig. 2): inner ends of cells  $R_3$ ,  $R_5$  and 1st  $M_2$  about on a line.

Abdomen dark brown, the segments very narrowly and indistinctly ringed with paler.

Habitat: Argentina.

Holotype, ♂, El Suncho, Catamarca, altitude 2500 meters, April 28, 1915 (P. Jorgensen).

In my key to the species of *Peripheroptera* (Ent. News, vol. 24, p. 409, 1913) this species runs to *P. schineri* O. S. of Brazil which differs in having a shiny yellowish-red thorax with an anterior black stripe, the legs yellow with the tips of the femora darker and the wings faintly yellowish.

Genus *Geranomyia* Curtis.

*Geranomyia nigripleura* new species.

Size small; rostrum moderately elongate, exceeding the combined head and thorax; mesonotum reddish-brown, the præscutum with indistinct stripes; thoracic pleura yellow with a broad dark brownish-black stripe that covers the dorsal sclerites; legs uniformly pale brown, the tarsi more yellowish; wings strongly infumed, the cord narrowly seamed with dark brown; abdominal tergites dark brown, the sternites bicolorous, brown and dull yellow.

*Male*.—Length, excluding the rostrum, 5.1 mm.; wing, 5.3 mm.; rostrum, 2.3–2.4 mm.

*Female*.—Length, excluding the rostrum, 4.8 mm.; wing, 5.1 mm.; rostrum, 2.6 mm.

Rostrum dark brown, a little paler distally, moderately elongated, longer than the head and thorax taken together. Antennæ black. Head dark gray.

Mesonotal præscutum rich reddish-brown with three narrow and indistinct darker stripes; lateral margins of the sclerite broadly yellowish; scutum yellow with the lobes reddish-brown. Pleura yellow, the dorsal pleurites dark brownish-black producing a broad stripe that extends from the cervical sclerites to the base of the abdomen and includes the halteres. Halteres dark. Legs with the coxæ and trochanters pale yellow; femora uniformly brown excepting the bases which are paler; tibiæ brown; tarsi pale yellowish-brown. Wings with a strong brownish tinge, deepest at the apex; stigma rounded oval, dark brown; indistinct dark brown seams at the tip of *Sc* and the base of the sector; less distinct seams along the cord and outer end of cell 1st *M*<sub>2</sub>. Venation (Plate I, fig. 1): *Sc* short, extending from just beyond the origin of the sector to opposite one-third its length; *Sc*<sub>2</sub> at the tip of *Sc*<sub>1</sub>; *Rs* about as long as cell 1st *M*<sub>2</sub>; basal deflection of *Cu*<sub>1</sub> at or just beyond the fork of *M*.

Abdominal tergites dark brown; sternites dull yellow on the apical half, brown on the basal half; ventral pleural appendages of the male hypopygium large, fleshy, brown. Valves of the ovipositor short, acute, the tergal valves slightly exceeding the sternal valves.

Habitat: Panama.

Holotype, ♂, San San, Department of Bocas del Toro, June 21, 1917 (Axel Olsson).

Allotopotype, ♀.

Paratopotypes, 1 ♂, 1 ♀.

This very interesting species may be confused only with *G. lineata* End. and *G. scolopax* Alex. From *lineata* it differs in its small size, coloration of the thoracic dorsum and pleura, and in the wing-pattern, there being no costal spot basad of the origin of the sector. From *scolopax* it is readily told by the long rostrum and dark colored wings without a dark spot at midlength of subcosta.

Genus **Rhamphidia** Meigen.

**Rhamphidia albitarsis fuscipes** new subspecies.

*Male*.—Length, 5–5.7 mm.; wing, 5–5.8 mm.

Average size smaller than typical *albitarsis* O. S.; thoracic dorsum dark brown, the humeral region a little paler. Pleura pale brown. Tarsi pale brown, only a shade lighter than the remainder of the legs. Wings pale brown, the stigma and costal region a little darker (Plate I, Fig. 4).

Habitat: Panama, Costa Rica.

Holotype, ♂, San San, Department of Bocas del Toro, Panama, June 21, 1917 (Axel Olsson).

Allotype, ♀, Zent River, Costa Rica, May 13, 1917 (Axel Olsson).

Paratopotypes, 8 ♂ ♀; paratype, ♀, with the allotype.

The specimen of *Rhamphidia albitarsis* from British Guiana mentioned by the writer in an earlier paper (Trans. Am. Ent. Soc., vol. 40, p. 230, 1914) probably belongs here.

**Rhamphidia albitarsis fumipennis** new subspecies.

*Male*.—Length, 6.5 mm.; wing, 6.5–7 mm.

Entire body and wings dark brownish black. Rostrum elongated. Legs black with the tarsal tips pure white as in typical *albitarsis*. The venation is shown on Plate I, Fig. 5.

Habitat: Panama.

Holotype, ♂, Silico Creek, Department of Bocas del Toro, October 4, 1917 (Axel Olsson).

Paratopotype, ♂.

Genus **Gonomyia** Meigen.

**Gonomyia (Gonomyella) subcostata** new species.

Antennæ with the scape yellow, the flagellum dark brown; mesonotum brownish-yellow with intense black markings; pleura white with a broad black dorsal stripe; legs yellowish, the tips of the segments darker; wings pale brownish-gray; *Sc* very long; *r* on the long  $R_{2+3}$  before midlength;  $R_2$  short, oblique.

*Female*.—Length, 5.5 mm.; wing, 4.6 mm.

Rostrum and palpi dark brown. Antennæ with the first segment brownish-yellow, the second segment yellow with the apex darker; flagellar segments long-oval, dark brown the black verticils longer than the segments. Head brownish.

Mesonotal præscutum reddish-yellow, the extreme margin almost white; three black stripes, the median one shiny, broadest in front, becoming indistinct behind; lateral stripes rounded-oval; scutal lobes blackish, the median area paler; scutellum largely dark; postnotum black, the lateral portions white. Pleura whitish, a broad black dorsal stripe extending from the cervical sclerites to the abdomen; sternites dark brownish-black. Halteres pale brown, the knobs darker brown with the extreme tips yellowish. Legs with the coxæ the trochanters whitish; femora yellow with the extreme tips brown; tibiæ yellow, the tips blackened; metatarsi yellowish, brownish at the tips; remainder of the tarsi dark brown. Wings with a faint brownish-gray tinge, the costal region more yellowish; stigma small, pale brown; veins dark brown, those of the costal region more yellowish. Venation (Plate I, Fig. 10):  $Sc$  very long, terminating just before the fork of the sector;  $Sc_2$  far removed from the tip of  $Sc_1$ ;  $R_s$  long, almost straight beyond the origin;  $r$  before the middle of the long  $R_{2+3}$ ;  $R_2$  short, oblique, a little shorter than  $R_{2+3}$ ; cell 1st  $M_2$  open by the atrophy of the outer deflection of  $M_3$ ; petiole of cell  $M_2$  a little shorter than the cell; basal deflection of  $Cu_1$  at the fork of  $M$ .

Abdominal tergites brown, the sternites paler; ovipositor reddish; tergal valves of the ovipositor long and but slightly upcurved, acute at the tips; the shorter sternal valves bear long fringes of hairs along the margin. The abdomen of the type is partly filled with large eggs which give a dark color to that part of the body.

Habitat: Panama (Darien).

Holotype, ♀, Rio Chico, near the mouth of the Rio Porcona, Department of Panama, August 4, 1918 (Axel Olsson).

This handsome little species is obviously related to the type of the subgenus, *G. (G.) slossonæ* Alex., but differs from it in the diagnostic characters outlined above.

#### **Gonomyia (Leiponeura) gladiator** new species.

Generally similar to *G. (L.) pleuralis* (Will.) and related species; outer angle of the hypopygial pleurite produced into a slender, chitinized hook that is longer than the pleurite alone.

*Male*.—Length, 5.5–6.4 mm.; wing, 4 mm.

*Female*.—Length, 6.7–6.8 mm.; wing, 4.5–4.7 mm.

Rostrum and palpi dark brown. Antennæ with the scape brownish-yellow, the flagellum dark brown, in the male with exceedingly elongate verticils. Head yellowish, darker medially.

Disk of the mesonotum rich brown, the margin light yellow. Pleura



yellow with two very broad dark brown stripes, the dorsal one much broader than the narrow ventral stripe, which, in turn, is still narrower than the pale vitta enclosed. Halteres short, dark. Legs with the coxæ pale, excepting the outer face of the fore coxa and the extreme base of the middle coxa which are dark colored; trochanters dull yellow; femora dull yellow, darker near the tips; tibiæ and tarsi dark brown. Wings with a strong grayish-brown suffusion, darkest on the anterior half, in cell  $R_3$  and along the cord; stigma oval, dark brown, situated in the pale cell  $R_1$ . Venation (Plate I, Fig. 11):  $Sc$  moderately long, ending before the origin of the sector, the distance between them a little greater than the basal deflection of  $R_{4+5}$ ; inner end of cell 1st  $M_2$  pointed; basal deflection of  $Cu_1$  just before the fork of  $M$ .

Abdominal tergites brown, paler sublaterally, the lateral and posterior margins dark; sternites dull yellowish-brown, darker posteriorly. Hypopygium with the pleural pieces short and stout, the outer angle (ventral apical appendage) produced into a slender slightly curved chitinized hook that is about one and one-half times the length of the pleurite itself and much longer than the pleural appendages, on the outer face near the base with a small setigerous tubercle. Dorsal apical appendage elongate-cylindrical, fleshy, with rather numerous long hairs; internal apical appendage semi-flattened, the inner margin with numerous stout spines that are more powerful at the tip of the organ. Gonapophyses short but powerful, the dorsal pair smooth with about four chitinized points, the largest pair of which are bent dorsad, the ventral pair more slender and directed caudad. Ventral gonapophyses terminating in two short chitinized teeth that are separated by a deep V-shaped notch, the face with numerous setigerous tubercles.

Habitat: Panama (Darien).

Holotype, ♂, Real de Santa Maria, Department of Panama, April 10, 1918 (Axel Olsson).

Allotopotype, ♀.

Paratopotypes, 10 ♂ ♀.

***Gonomyia (Leiponeura) producta* new species.**

Generally similar to *G. (L.) scimitar* Alex.; outer angle of the pleurite of the hypopygium produced into a slender cylindrical fleshy lobe.

*Male*.—Length, about 3 mm.; wing, 3.2 mm.

Rostrum and palpi dark brown. Antennæ dark colored. Head dark.

Mesonotum rich brown, the præscutum margined with yellowish; the centers of the scutal lobes dark brown, the median area bright yellow; scutellum orange, darker basally; postnotum yellow with the center darker. Pleura dark purplish-brown with a broad yellow longitudinal stripe. Halteres short, yellow. Legs with the coxæ dark purplish-brown; trochanters dull yellowish-brown, the remainder of the legs broken. Wings subhyaline; stigma indistinct; veins yellowish-brown. Venation about as in *G. puer* Alex. and related species;  $Sc$  rather short, ending before the origin of the sector; veins

$R_{4+5}$  and  $M_{1+2}$  very close together at the wing margin, the distance separating them less than half the length of  $m$ .

Abdomen dark brown above, the dorso-median line and the posterior margins of the segments a little darker; sternites somewhat paler. Hypopygium with the dorsal angle of the pleurites produced caudad as a slender cylindrical fleshy appendage that is blunt at the tip and sparsely provided with coarse hairs. Ventral pleural appendage a slender curved hook, as in *G. scimitar* Alex. and related species, but even longer, more slender and more curved, bent ventrad, caudad and slightly laterad, the tip acute. The apical inner angle of the pleurite is produced into a short, compressed blade. The penis-guard and gonapophyses extend just beyond the base of the dorsal pleural appendage, pale, with the apex bifid.

Habitat: Lesser Antilles.

Holotype, ♂, Antigua, sweeping at Blubber Valley, March, 1908 (H. A. Ballou).

Type in the collection of Mr. C. W. Johnson.

In *G. scimitar* we get an approach to the accentuated condition occurring in *G. producta*, but here the dorsal outer angle of the pleurite is but slightly produced, not more than one-third the length of the pleurite.

**Gonomyia (Leiponeura) extensa** Alex.

1914. *Gonomyia (Leiponeura) extensa* Alex.; Trans. Am. Ent. Soc., Vol. 40, p. 243.

One male, two females, Gatun, Canal Zone, Panama, Dec. 12-14, 1912 (J. Zetek). These agree closely with the type, but the chitinated pleural appendages of the hypopygium lack the acute spines at the tips which may possibly be broken off. The species has been recorded only from British Guiana.

Genus **Trentepohlia** Bigot.

Subgenus **Neomongoma**, new subgenus.

Two branches of Media reach the wing-margin,  $M_3$  and  $Cu_1$  being entirely distinct;  $Cu_2$  and 1st  $A$  widely separated at the wing-margin.

Type of the subgenus.—*Mongoma disjuncta* Alex. (Brazil).

The large genus *Trentepohlia* (*Mongoma*) has been variously subdivided by recent workers on the Tipulidæ. It seems convenient, at least, to recognize some of these groups as subgenera. The four that seem best defined are as follows:

1. *Trentepohlia* Bigot (type *trentepohlii* (Wied.)); syn. *Mongomioides* Brunetti (type *trentepohlii* (Wied.)).

2. *Mongoma* Westwood (type *fragillima* (Westw.)).
3. *Paramongoma* Brunetti (type *albitarsis* (Dol.)); syn. *Mongomella* Enderlein (type *pallida* (Will.)).
4. *Neomongoma*, new (type *disjuncta* (Alex.)).

These groups may be separated by the following key:

1. Vein and cell  $M_3$  present (i. e., 4 posterior cells) ..... 2  
     Vein and cell  $M_3$  lacking (i. e., 3 posterior cells) ..... 3
2. Cell  $Cu$  widely open at the wing-margin (New World)....*Neomongoma* new.  
     Cell  $Cu$  closed by the fusion of  $Cu_2$  and 1st  $A$  at the wing-margin (Old World) .....*Mongoma* Westwood.
3. Cell 1st  $M_2$  open by the atrophy of  $m$ ; cell  $Cu$  closed by the fusion of  $Cu_2$  and 1st  $A$  at the wing margin (Old World)....*Trentepohlia* Bigot.  
     Cell 1st  $M_2$  closed; cell  $Cu$  open at the wing-margin (mostly New World; one species in Java) .....*Paramongoma* Brunetti.

***Trentepohlia* (*Paramongoma*) *albitarsis* (Dol.) of Java.**

This is a very rare species that has apparently not been found since its original discovery. To judge from Brunetti's recharacterization of the insect it agrees well with the Neotropical species of the subgenus except that the sector continues to the inner angle of cell 1st  $M_2$  obliterating the deflection of vein  $R_{4+5}$ .

The most generalized member of the genus so far made known is *T. disjuncta* (Alex.); the most specialized are species of the subgenus *Trentepohlia* of the *gracilis* group (*gracilis* (End.), *zambezia* (Alex.), *nigroapicalis* (Brun.), etc.).

***Trentepohlia* (*Paramongoma*) *sororcula* new species.**

General coloration light brown, tibiae broadly white at the tips; all the tarsi white; wings with the stigma pale.

*Male*.—Length, 7 mm.; wing, 6.2 mm.; hind leg, femur, 11.3 mm.; tibia, 11.7 mm.

*Female*.—Length, 8.6 mm.; wing, 6.3 mm.; fore leg, femur, 10.2 mm.; tibia, 11.4 mm.

Rostrum and palpi brown. Antennae dark brown, the flagellar segments almost cylindrical and rather elongate. Head brown.

Thorax shiny light brown, the pleura slightly more yellowish. Halteres short, brown. Legs with the coxae and trochanters yellowish; femora light brownish-yellow, the tips narrowly (.6-.9 mm.) white; tibiae with a white basal band that is subequal to or a little narrower than the apical ring of the femur; remainder of the tibiae brown except the broad (3.3-4 mm.) white tips; tarsi white. Wings with a slight yellowish tinge; stigma small, rounded, pale brown; veins dark brown. Venation (Plate I, Fig. 15): basal deflection of  $Cu_1$  just before the fork of  $M$ .

Abdominal tergites pale brown, the sternites still paler; female ovipositor with the elongate acicular valves of this group of species.

Habitat: Panama (Darien).

Holotype, ♂, Between the Rio Capeti and the Rio Yape, Department of Panama, June 27, 1918 (Axel Olsson).

Allotopotype, ♀.

In its uniformly white tarsi this species is allied to *T. leucoxena* (Alex.) of Mexico, a large species that is much darker colored, the stigma dark brown, the legs dark brown with the white femoral and tibial tips much wider, etc. It is probable that all of the known members of the *bromeliadicola* group of the genus breed in the water and detritus that accumulates in the leaf axils of bromeliaceous plants. The species of this group of the subgenus may be separated as follows:

1. All the tarsi white ..... 2  
Not as above; at least the fore and middle tarsi dark or else the metatarsi ringed basally with black ..... 3
2. Larger; abdominal tergites laterally yellowish; stigma dark brown (Mexico) ..... *leucoxena* (Alex.).  
Small and uniformly pale brown in color; stigma pale (Panama),  
*sororcula* n. sp.
3. All the tarsi dark brown ..... 4  
Not as above; at least the hind tarsi with white ..... 5
4. Tibiæ with the extreme tips white (Costa Rica)....*bromeliadicola* (Alex.).  
Tibiæ dark brown beyond the base (British Guiana)...*geniculata* (Alex.).
5. Hind tarsi white; middle tarsi brown (British Guiana)....*pallipes* (Alex.).  
All the tarsi white, the metatarsi with the basal quarter black (Panama),  
*metatarsata* (Alex.).

Genus **Gnophomyia** Osten Sacken.

**Gnophomyia laticincta** new species.

Coloration reddish-brown; femora pale brown, broadly tipped with darker; wings subhyaline with a broad indistinct band along the cord.

*Male*.—Length, 7.8 mm.; wing, 7.5 mm.

Rostrum and palpi short, dark brown. Antennæ moderately elongated, reddish-brown, the flagellar segments elongate-cylindrical, covered with a pale pubescence. Head reddish-brown; eyes large.

Mesonotum reddish-brown, the præscutum with the four stripes confluent and rather indistinct; humeral regions and the lateral margins more yellowish. Pleura pale with indistinct dark markings, sparsely gray pruinose. Halteres pale, reddish-brown basally, the knobs dark brown. Legs with the coxæ pale, sparsely gray pruinose; trochanters pale brown; femora pale brown, the tips broadly darkened and weakly incrassated; tibiæ brown, the tips narrowly

darkened; tarsi brown, darker apically. Wings broad, very pale brown; a broad pale brown band across the disk at the cord, the inner margin of this pale fascia just proximad of the cord, the outer margin just outside the end of cell 1st  $M_2$ , the center of which is paler than the ends; stigma elongate, dark brown; costal and subcostal veins yellowish, other veins dark brown. Venation (Plate I, Fig. 14):  $Sc$  long ending just before  $r$ ;  $Rs$  long, straight;  $R_{2+3}$  rather short, a little longer than the basal deflection of  $Cu_1$ ; deflection of  $R_{4+5}$  lacking,  $Rs$  in alignment with  $R_{4+5}$ ; cell 1st  $M_2$  rather long and narrow, the proximal end narrowed; basal deflection of  $Cu_1$  just before midlength of cell 1st  $M_2$ .

Abdomen reddish-brown, the sternites brighter; hypopygium pale. Hypopygium with the pleurites stout; dorsal pleural appendage short, the proximal angle produced into a dark cylindrical arm that is sparsely clothed with long coarse hairs at the tip and along the outer face; ventral pleural appendage longer, strongly curved, the apex rather blunt and unarmed.

Habitat: Panama.

Holotype, ♂, Porto Bello, April 19, 1912 (August Busck).

Type in the collection of the U. S. National Museum.

***Gnophomyia lachrymosa* new species.**

General coloration dark brown; mesonotum with sparse yellowish markings; halteres black throughout; wings uniformly darkened.

*Male*.—Length, 6.5 mm.; wing, 6.4 mm.

Rostrum and palpi dark brown. Antennæ with the basal segments dark brown, the flagellum broken. Head dark brown, the vertex greatly narrowed.

Thorax discolored in the type; præscutum dark brown with the lateral margin and the humeral region paler; scutum with the posterior margin and postnotum with the lateral margin pale. Pleura pale with a broad and rather ill-defined dark brown dorsal stripe. Halteres short, blackish throughout. Legs with the coxæ and trochanters pale brown, remainder of the legs broken. Wings narrow with a uniform slight dusky tinge; stigma indistinct; veins dark brown. Venation (Plate I, Fig. 13):  $Sc$  long, ending opposite the oblique  $r$ ;  $Rs$  oblique, almost straight, in a line with  $R_{4+5}$ ;  $R_{2+3}$  a little shorter than  $Rs$ ;  $r$  at the fork of  $R_{2+3}$ ;  $R_2$  and  $R_3$  long, parallel; deflection of  $R_{4+5}$  lacking; basal deflection of  $Cu_1$  at about one-fourth to one-fifth the length of the long cell 1st  $M_2$ .

Abdomen dark brownish-black, the hypopygium a little more reddish. Hypopygium with the pleurites rather short and stout; dorsal pleural appendage a long, compressed basal arm with the tip almost squarely truncated; ventral pleural appendage longer, slightly curved, broadest basally, the dorsal portion tapering gradually to the acute blackened apex, the surface feebly sculptured; on the ventral face before the tip with a very acute slender appressed spine.

Habitat: Panama.

Holotype, ♂, Porto Bello, February 15, 1911 (August Busck).

Type in the collection of the U. S. National Museum.

This species is evidently allied to *G. maestitia* Alex. of Peru, but is easily distinguished by the wing-pattern and venation. In *maestitia* the sector and  $R_{2+3}$  are very short,  $r$  inserted on the very long  $R_2$ ; deflection of  $R_{4+5}$  distinct, subequal to  $r$  too long, about half of the size  $m$ ; cell 1st  $M_2$  very long and narrow with the basal deflection of  $Cu_1$  at or beyond midlength. This species and *G. laticincta* run close to *G. subhyalina* Alex. and form a group of nearly related insects.

**Gnophomyia olssoni** new species.

Antennæ of the male elongated; wings with a strong pubescence in the apical cells; tibiæ and tarsi whitish.

*Male*.—Length about 3 mm.; wing, 3.3 mm.; antennæ about 2 mm.

The type is mounted in balsam.

Rostrum and palpi dark brown. Antennæ of the male elongated, more than half the length of the body, dark brown; flagellar segments very elongate-cylindrical, densely clothed with abundant stiff, erect hairs; flagellar segments gradually shortened toward the end of the antenna, the last segment about one-third the size of the penultimate. Head brown.

Thorax brown, the pleura more yellowish. Halteres brown, the knobs darker. Legs with the coxæ and trochanters yellowish-brown; femora brown; tibiæ brown passing into whitish at about one-third the length; tarsi whitish, the terminal segments broken. Wings with a strong brown tinge; stigma indistinct; veins dark brown; a very strong but sparse pubescence in the apical cells. Venation (Plate I, Fig. 12):  $Sc$  long, ending just beyond the fork of the sector;  $Sc_2$  at the tip of  $Sc_1$ ;  $Rs$  long, arcuated at origin;  $R_{2+3}$  about one-half the length of the sector;  $r$  oblique, inserted on  $R_2$ ;  $r-m$  long, arcuated; cell 1st  $M_2$  small, closed; basal deflection of  $Cu_1$  nearly opposite midlength of cell 1st  $M_2$ .

Abdomen dark brown, the sternites paler; hypopygium broken.

Habitat: Panama.

Holotype, ♂, Rio Cana, Department of Bocas del Toro, September 25, 1917 (Axel Olsson).

The generic reference may possibly be questioned by some, but there is no other group that can receive this aberrant species. It agrees with *G. luctuosa* O. S. in the strongly pubescent wings, but the elongate antennæ of the male is an unusual feature in the genus. I take great pleasure in dedicating this interesting fly to its collector, my intimate friend, Dr. Axel Olsson.

## A KEY TO THE AMERICAN SPECIES OF GNOPHOMYIA OSTEN SACKEN.

1. A supernumerary cross-vein in cell  $R_2$  or  $R_3$  ..... 2  
     No supernumerary cross-vein in cell  $R_2$  or  $R_3$  ..... 3
2. Cross-vein before midlength of vein  $R_3$  in cell  $R_3$ ; large, wing over 11 mm.; mesonotum orange; abdomen black; wings brown; legs black. (Brazil.) ..... **rufithorax** (Wied.).  
     Cross-vein beyond midlength of vein  $R_2$  in cell  $R_2$ ; small, wing about 5 mm.; thorax black; abdomen dark brownish-black; wings light brown diversified with hyaline and brown; legs light yellow. (Brit. Guiana.) ..... **decisa** Alex.
3. Wings with a strong apical pubescence ..... 4  
     Wings without an apical pubescence ..... 5
4. Coloration black throughout; antennæ of the male short; legs black. (Neotropical, S. Nearctic) ..... **luctuosa** O. S.  
     Coloration brown; antennæ of the male elongated; tibiæ and tarsi whitish. (Panama.) ..... **olssoni** n. sp.
5. Cell 1st  $M_2$  open. (Wn. Nearctic.) ..... **aperta** Coq.  
     Cell 1st  $M_2$  closed ..... 6
6. Size large, length about 14 mm.; color black except the thorax and abdomen which are orange. (Mexico.) ..... **magnifica** Alex.  
     Size small, length under 10 mm.; coloration not as above ..... 7
7. Wings uniform in color or indistinctly streaked longitudinally with brown and white; not cross-banded ..... 8  
     Wings pale with darker cross-bands or dark with pale bands ..... 14
8. Knobs of halteres yellow ..... 9  
     Halteres dark throughout ..... 10
9. Wings uniformly darkened. (Eastern Nearctic.) ..... **tristissima** O. S.  
     Wings longitudinally streaked. (Colorado)..... **tristissima cockerelli** Alex.
10.  $R_{2+3}$  very strongly arcuated at its origin, almost perpendicular to the sector;  $R_2$  short, not parallel with  $R_3$ . (Brit. Guiana.) .. **arcuata** Alex.  
     Venation not as above ..... 11
11. Wings infumed with a slightly darker band at the cord; thorax black with yellow spots. (Peru.) ..... **maestitia** Alex.  
     Wings hyaline or darkened, uniform ..... 12
12. Coloration dark, black or dark brown ..... 13  
     Coloration rusty red or ferruginous. (Mexico.) ..... **ferruginea** Will.
13. Size small, length about 4 mm.; wings infumed with violaceous. (Brazil.) ..... **nigrina** (Wied.).  
     Size larger, length over 6 mm.; wings slightly dusky. (Panama.) ..... **lachrymosa** n. sp.
14. Wings pale with brown bands ..... 15  
     Wings brownish with subhyaline bands ..... 19
15. Vein  $R_2$  very short, straight, not parallel to  $R_3$  ..... 16  
     Vein  $R_2$  long, generally parallel to  $R_3$  ..... 17

16. A basal band in addition to the one at the cord. (Brazil.).. **hirsuta** Alex.  
 A dark band at the cord. (Peru, Panama.) ..... **pervicax** Alex.
17. Coloration black; wings subhyaline with two dark bands. (Brazil.)  
**osten sackeni** Skuse.  
 Not as above ..... 18
18. Wings brown with a still darker band at the cord ..... **maestitia** Alex.  
 Wings subhyaline with a broad indistinct brownish band along the  
 cord; coloration reddish-brown. (Panama.) ..... **laticincta** n. sp.
19. Wings brownish with two subhyaline bands. (Brazil.).... **caloptera** O. S.  
 Wings subhyaline with an indistinct hyaline cross-band just beyond  
 the cord. (C. and S. America.) ..... **subhyalina** Alex.

Genus **Limnophila** Macquart.

Subgenus **Limnophilella** new subgenus.

Similar to *Limnophila* in the strict sense; wing-venation with the radial sector angulated or spurred at origin; *r* far removed from the tip of  $R_1$ ; basal deflection of  $Cu_1$  before the fork of *M*; 2nd anal cell narrow; halteres very long and slender; tibial spurs of medium size; abdomen elongate.

Type of the subgenus.—*Limnophila epiphragmoides* Alex. (Brazil). The new species described below is congeneric. In practically all the genera and subgenera related to *Limnophila* the basal deflection of  $Cu_1$  is underneath the cell 1st  $M_2$ ; in *Dactylolabis* it is inserted usually at the fork of *M*. In the two species included in this new group the deflection is inserted on *M* far before its fork and I have no doubt of the validity of such a group which may include many species when the fauna of tropical America is better known.

**Limnophila (Limnophilella) victor** new species.

General coloration dark brown including the legs and slender halteres; wings subhyaline with a heavy brown pattern; *Rs* long spurred at origin; petiole of cell  $M_1$  rather long; basal deflection of  $Cu_1$  slightly before the fork of *M*; abdomen with the sternites ringed with brown.

*Female*.—Length, 11.4 mm.; wing, 10.2 mm.; halteres, 2.3 mm. Middle leg, femur, 6.7 mm.; tibia, 9 mm.; hind leg, femur, 7.2 mm.; tibia, 9.8 mm.

Rostrum rather light brown, palpi darker brown. Antennæ dark brown, rather elongate for this sex. Head light colored.

Thorax dark brown, the mesonotal stripes indistinct. Pleura pale testaceous with large indistinct darker blotches. Halteres very long, slender, dark brown throughout. Legs dark brown, the femora a little paler at the base. Wings narrow, subhyaline, with a heavy brown pattern; cells *C* and *Sc* more



yellowish; the large brown markings are well scattered over the disk as shown in the figure; veins brown. Venation (Plate I, Fig. 6):  $Sc$  long,  $Sc_2$  at its tip, ending beyond the fork of  $R_{2+3}$ ;  $r$  removed from the tip of  $R_1$ ;  $Rs$  square at its origin and at the angle with a very long spur that is longer than  $R_{2+3}$ ;  $R_{2+3}$  a little longer than the basal deflection of  $Cu_1$  which is inserted before the fork of  $M$ ; petiole of cell  $M_1$  a little longer than  $R_{2+3}$ ;  $2d$   $A$  long, ending opposite the base of the sector; second anal cell moderately broad.

Abdomen elongate, the tergites dark brown; sternites dull yellowish with the segments ringed subbasally and more narrowly apically with brown; valves of the ovipositor short, the tergal valves strongly upcurved, with the tips subacute.

Habitat: Panama (Darien).

Holotype, ♀, Quebrada Richa, a branch of the Rio Tapaliza, a branch of the Rio Pucro, Department of Panama, altitude 1300 feet, July 24, 1918 (Axel Olsson).

This interesting species is allied to *L. epiphragmoides* Alex. (Brazil), but is readily separated by the diagnostic characters given above.

Genus **Epiphragma** Osten Sacken.

**Epiphragma varia** (Wied.).

1828. *Limnobia varia* Wied; Aussereur. Zweifl. Ins., Vol. 1, p. 573.

One male specimen from the Quebrada Richa, a branch of the Rio Tapaliza, a branch of the Rio Pucro, Department of Panama, Panama, altitude 1,300 feet, July 24, 1918 (Axel Olsson). The species had been recorded only from Brazil.

Genus **Eriocera** Macquart.

**Eriocera columbiana** new species.

Coloration a deep intense black throughout.

*Male*.—Length, about 10.5 mm.; wing, 11.2 mm.; fore legs, femur, 6.6 mm.; tibia, 8.4 mm.; hind leg, femur, 8.3 mm., tibia, 10.8 mm.

Coloration a deep intense black throughout. Thoracic dorsum shiny. Wing broad;  $Sc$  moderately long, ending before midlength of  $R_{2+3}$ ;  $r$  near the tip of  $R_1$  and inserted on  $R_2$ ; basal deflection of  $M_{1+2}$  a little arcuated, the inner end of cell 1st  $M_2$  slightly more proximad than cell  $R_5$ ; cell  $M_1$  lacking; basal deflection of  $Cu_1$  inserted at about one-third the length of cell 1st  $M_2$ ;  $Cu_1$  and  $Cu_2$  subequal (Plate I, Fig. 8).

Habitat.—Colombia.

Holotype, ♂, Bolivar, December 21, 1916 (E. B. and J. H. Williamson).

**Eriocera argentina** new species.

Coloration black throughout; antennæ short; a narrow gray line around the inner margin of the eyes; wings with cell  $M_1$  lacking.

*Male*.—Length, 11–11.4 mm.; wing, 9.3–10 mm.

Rostrum and palpi black. Antennæ short, black. Head with the frontal tubercle prominent, divided into two parts by a broad median furrow; head black with a narrow gray line surrounding the outer side of the frontal tubercle and continued back around the inner margin of the eye.

Mesonotal præscutum with a sparse gray bloom on the restricted interspaces, the stripes very broad, black; scutum, scutellum and postnotum black. Pleura and coxæ black with a very sparse gray bloom. Halteres and legs black. Wings strongly suffused with blackish; costal region a little darker; veins black. Venation (Plate I, Fig. 7):  $r$  inserted on  $R_2$ , just beyond the fork of  $R_{2+3}$  and near the tip of  $R_1$ ; cell  $M_4$  lacking.

Abdomen black.

Habitat: Argentina.

Holotype, ♂, La Plaza, Province of Catamarca, altitude 2,400 meters, February 18, 1915 (P. Jorgensen).

Paratopotype, ♂.

The types bear the label "on the rivulets."

Genus **Penthoptera** Schiner.

**Penthoptera sanctæ-martæ** new species.

Coloration dark brownish-black; legs dark, the tarsi largely pure white; wings strongly infumed; cell  $M_1$  lacking.

*Male*.—Length, about 6.5 mm.; wing, 8.3 mm.

Rostrum and palpi dark brownish-black. Antennæ rather short, black. Head black with a sparse grayish bloom.

Mesonotum dark brownish-black. Pleura a little grayish. Halteres long, dark brown. Legs with the coxæ and trochanters dark brown; femora dark brown, the extreme bases yellowish; tibiæ dark brown; metatarsi with the basal two-thirds dark brown, on the hind legs less extensive, occupying less than the basal half; remainder of the tarsi, excepting the last two segments, white. Wings with a strong brown tinge, the costal region and the wing-apex a little darker; stigma small, oval, dark brown; veins dark brown. Venation (Plate I, Fig. 9):  $r$  at the tip of  $R_1$ ; deflection of  $R_{4+5}$  obliterated,  $r-m$  being inserted just before the fork of the sector; cell  $M_1$  lacking;  $r-m$  and the inner end of 1st  $M_2$  in alignment; basal deflection of  $Cu_1$  far beyond midlength of cell 1st  $M_2$ ; second anal vein very short.

Abdomen dark brownish-black, the genital segment a little brighter.

Habitat: Colombia.

Holotype, ♂, Santa Marta Mt., December 31, 1916 (E. B. and J. H. Williamson).

In the lack of cell  $M_1$  of the wings, this species is evidently allied to *P. conjuncta* Alex. (Psyche, vol. 21, pp. 44, 45; pl. 4, fig. 2; 1914) of Guatemala; the latter is a larger species (wing over 9 mm.); with the mesonotum yellowish-brown, the præscutum with four dark brown markings, the pleura yellowish; femora yellowish-brown; wings subhyaline with the tip darkened. The venation of the two species is quite distinct, in *conjuncta* the basal deflection of  $R_{4+5}$  being long, cell 1st  $M_2$  more elongate, with the basal deflection of  $Cu_1$  inserted at about midlength and the second anal vein decidedly longer.

Genus **Tanypremna** Osten Sacken.

**Tanypremna fuscitarsis** new species.

General coloration chestnut-brown, the præscutum with darker brown humeral angles; legs dark brown with only a narrow white band before the tips of the tibiæ; wings subhyaline; abdomen greenish-brown, the tergites banded with paler.

*Male*.—Length, 26.5 mm.; wing, 15.6 mm.

Fore leg, femur, 12.1 mm.; tibia, 12.7 mm.; hind leg, femur, 13.2 mm.; tibia, 14.3 mm.

Frontal prolongation of the head short, pale greenish-white, the rostrum and palpi brown or the latter a little more greenish. Antennæ short, the three basal segments pale yellowish; flagellar segments dark brown. Head pale golden-yellow with a narrow dark brown median line.

Mesonotal præscutum chestnut with a dark brown median stripe; the usual lateral stripes are separated from the median stripe by deep impressed furrows; a triangular yellowish mark on the lateral margins of the præscutum, continued anteriorly along the lateral margin of the median stripe and so cutting off a broad triangular dark brown mark at the humeral angles; scutellum brown, the median area depressed; scutellum pale; postnotum dark brown, the margins pale. Pleura pale greenish-yellow, the dorso-pleural membranes dusky. Halteres pale basally, the knobs dark brown. Legs with the coxæ pale, the outer faces a little infumed; trochanters greenish, a little infuscated beneath; femora dark brown, more greenish basally; tibiæ dark brownish-black, a narrow (1.5 mm.) white band before the broader (about 2.5 mm.) dark tip; tarsi dark brown. Wings in the teneral type, pale, the stigma darker. Venation (Plate I, Fig. 16):  $R_s$  short, straight, oblique, a little shorter than  $R_{2+3}$ ;  $R_2$  running close to  $R_1$ , the cell 2d  $R_1$  being very long and narrow; deflection of  $R_{4+5}$  short or punctiform; cell 1st  $M_2$  elongate.

Abdominal tergites greenish-brown with an indistinct pale transverse band at about midlength of the segments; basal tergites with a pale area at the anterior lateral margin; lateral line dark brown; sternites yellow, the apices of the segments brown, the basal segments strongly greenish.

Habitat: Colombia.

Holotype, ♂, Santa Marta Mt., December 29, 1916 (Jesse H. Williamson).

In my key to the species of the genus *Tanypremna* (Journ. N. Y. Ent. Soc., vol. 22, pp. 207, 208; 1914) this species falls naturally into the first group of the genus, *longipes* (Fabr.), *manicata* O. S. and *longissima* (End.) from all of which it differs notably in the uniformly dark-colored tarsi.

***Tanypremna longipes* (Fabr.).**

1805. *Tipula longipes* Fabr.; Syst. Antl., p. 25.

A male from Cristalina, Colombia, February 17, 1917 (E. B. Williamson).

***Tanypremna opilio* O. S.**

1886. *Tanypremna opilio* O. S.; Biol. Cent. Amer., Dipt., Vol. 1, p. 19, Pl. 1, Fig. 2.

A male from Sibube, Department of Bocas del Toro, Panama, June 1, 1917 (Axel Olsson).

Genus ***Brachypremna*** Osten Sacken.

***Brachypremna candida* Alex.**

1912. *Brachypremna candida* Alex.; Journ. N. Y. Ent. Soc., Vol. 20, p. 233.

A few specimens from Guabito, Sixola, Department of Bocas del Toro, Panama, May 24, 1917 (Axel Olsson). The species had hitherto been recorded only from South America.

***Brachypremna unicolor* O. S.**

1887. *Brachypremna unicolor* O. S.; Berl. Ent. Zeit., Vol. 31, Pt. 2, pp. 239, 240.

A few specimens from Sanchez, Santo Domingo, June 7-12, 1915, in the collection of the American Museum.

Genus ***Tipula*** Linnæus.

***Tipula andalgala* new species.**

Belongs to the *monilifera* group; a delicate brown line extending from the front to near the end of the abdomen; antennæ moderately elongated and of a normal Tipuline structure, bicolorous; thoracic dorsum gray; abdomen trivittate and with a brown subterminal ring; female with the wings semi-atrophied.

*Male*.—Length, about 13-14 mm.; wing, 15-15.5 mm.

*Female*.—Length, about 26-27 mm.; wing, 11 mm.

*Male*.—Frontal prolongation of the head moderately long, dull yellow, more brownish laterally; nasus distinct. Antennæ elongate, if bent backward extending about to the base of the abdomen; scape and the first segment of the flagellum dull yellow, the remainder of the flagellum yellow with the basal swelling black, the terminal segments more brownish throughout. Head light gray or yellowish-gray with a narrow dark brown median line extending from the frontal tubercle caudad, somewhat interrupted on the vertex.

Mesonotal præscutum brownish-yellow, narrowly striped with darker brown; a narrow median stripe, broadened behind and attaining the suture; on either side of the middle stripe a pale brown line which evidently represents the outer border of the indistinct intermediate stripe, behind converging and fusing with the middle stripe at the suture; lateral stripes likewise represented only by a narrow dark margin; thoracic interspaces with brown setigerous punctures; scutum gray with the median area narrowly dark brown, a continuation of the median præscutal stripe; a less distinct dark oblique mark on the outer half of the scutal lobes; scutellum buff with a narrow median brown line; postnotum gray with an indistinct median dark brown line. Pleura light gray with indistinct darker markings. Halteres dull brownish yellow, the knobs dark brown. Legs with the coxæ pale yellow, gray pruinose; trochanters dull yellow; femora brownish-yellow, brightened at the base, the apex broadly dark brown; tibia brownish-yellow, the tip narrowly dark brown; tarsi yellowish-brown. Wings with a gray suffusion; costal region brighter yellowish; wings with brown spots and clouds; a brown spot at the arculus; a brown spot before midlength of the distance before the origin of the sector and another at the origin of the sector, these two latter connected in cell *R*; stigma brown, continued down onto the cord; cloudings in the apical cells, along the deflection of  $Cu_1$ , in cell *M* at about midlength and in the anal cell. Venation: petiole of cell  $M_1$  short, about as long as, or very little longer than, *r*.

Abdomen brownish-yellow, segments seven and eight dark brown; tergites with an indistinct narrow dark brown median line and a narrow dark brown sublateral stripe; extreme lateral margins of the sclerites grayish. Hypopygium with the ninth tergite broadest basally, the sides sloping, the caudal margin with a V-shaped notch; lateral lobes broad, truncated at their apices; a broad dorso-median depression. Ninth pleurite small, complete, at its proximo-ventral angles with a small hemispherical lobe that is covered with a dense pale pubescence and a few long hairs; the outer pleural appendage elongate, pale, with long hairs. Ninth sternite deeply incised on the midline, but connected basally. Eighth sternite with a trifid appendage, the median lobe of which is between two and three times the length of the short lateral lobes and feebly carinate on the ventral face.

*Female*.—Similar to the male, but the abdomen more elongated; the setigerous punctures on the præscutal interspaces more prominent, but the lateral stripes of both præscutum and scutum obsolete. Wings semiatrophied, slightly reduced in length and greatly in width, the pattern and venation distorted. Abdominal tergites with a punctured rectangular area on either side.

of the median dorsal stripe, on segments three to seven subbasal in position; dorsal median stripe very broad. Ovipositor with the tergal valves long and slender, acicular, lying almost parallel; sternal valves shorter and deeper.

Habitat: Argentina.

Holotype, ♂, Cerro de Carocal, Catamarca, altitude 3,100 meters, February 17, 1915 (P. Jorgensen).

Allotopotype, ♀.

Paratype, ♂, Andalgalá, Catamarca, altitude 1,000 meters, August 1, 1914 (P. Jorgensen).

This new species belongs to the *monilifera* group of the genus, which has been discussed in some detail by the writer (Trans. Am. Ent. Soc., vol. 42, pp. 23-30, pls. 3-5, 1916) and is of exceptional interest as belonging to the intermediate group of species, falling between the forms with short antennæ and those with elongate organs. In the present species the antennæ are quite normally tipuline in structure; the lateral lobes of the trifid appendage on the eighth sternite are shorter than in *exilis* Alex. (Peru), but longer than in *jivaro* Alex. (Ecuador). The semiatrophied wings of the female sex are interesting.

The specific name, *andalgalá*, is that of a Calchaqui tribe of this region.

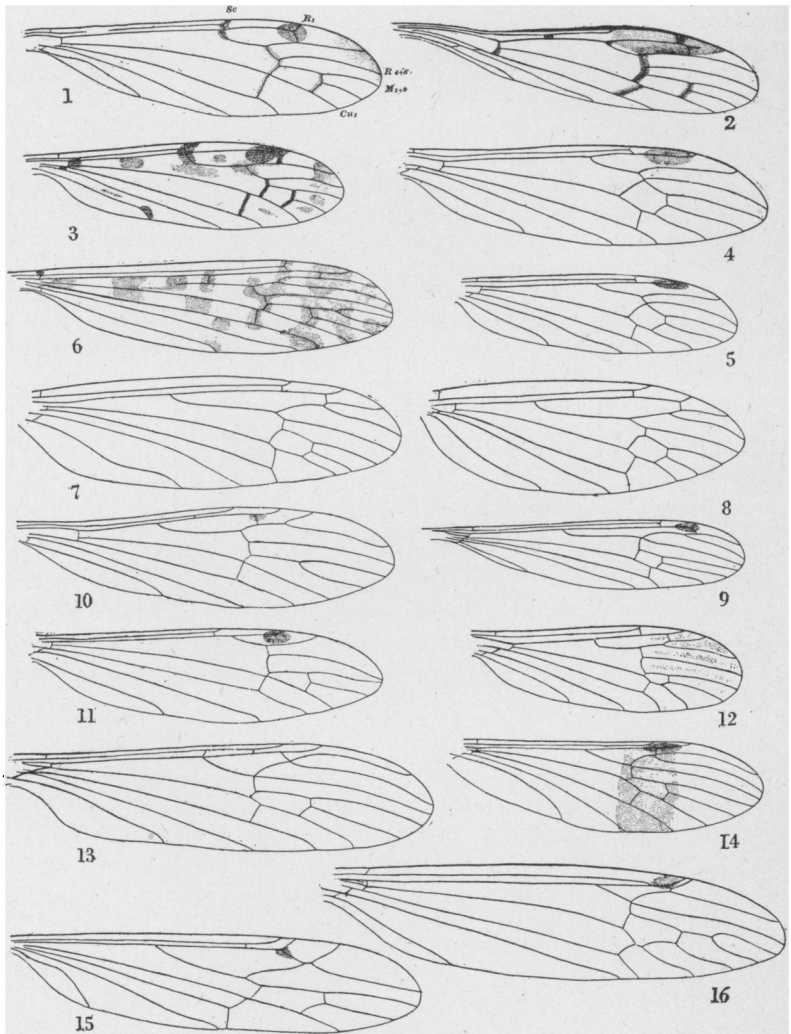
***Tipula spinicauda*** new species.

Belongs to the *longitarsis* group; general coloration brown; abdomen reddish-yellow, in the male with a subterminal black ring; wings dusky with the costal region dark brown; male hypopygium with the lateral angles of the ninth tergite produced caudad into straight chitinized arms that are minutely spinulose on their inner faces.

*Male*.—Length, about 14 mm.; wing, 12.5 mm.; antennæ, about 6.5 mm.; fore leg, femur, 9.6 mm.; tibia, 12.1 mm.

Frontal prolongation of the head short, brown, the nasus distinct. Palpi long, brown. Antennæ with the scapal segments dull yellow, the flagellum black, the first segment a little paler at the extreme base; flagellar segments elongated. Head brown.

Mesonotum rich reddish-brown without distinct stripes, the præscutum brighter laterally; scutal lobes darker. Pleura yellowish-buff. Halteres brown. Legs long and slender, the coxæ and trochanters buff, femora dark brown, paler basally; tibiæ and tarsi dark brown. Wings with a decided dusky tinge, cells *C* and *Sc* and the stigma dark brown; apex of the wing in cells  $R_2$  and  $R_3$  infumated; indistinct brown seams along the veins that include and lie beyond the cord; veins dark brown; small obliterative areas before the stigma, in the end of cell *R*, base of cell 1st  $M_2$  and the base of  $M_4$ . Venation:  $R_2$



**Tipulidæ.**

distinct, a little shorter than  $R_{2+3}$ ;  $R_s$  a little shorter than  $R_3$ , petiole of cell  $M_1$  moderate, about as long as  $R_{2+3}$ ; fusion of  $Cu_1$  and  $M_{3+4}$  subpunctiform.

Abdomen reddish-yellow, tergites six, seven, and the basal two-thirds of eight black, the lateral margins reddish, those of segment eight broadly so; sternites similar, segment seven black. Male hypopygium with the ninth tergite extensive, the caudal margin with a deep U-shaped notch, the lateral angles produced caudad into long straight arms that are heavily chitinized at their tips, the inner face minutely and densely spinulose; along the margin of the notch of the tergite these spines are less numerous and much more slender; sides of the tergite with numerous long hairs. Ninth pleurite small, complete; outer pleural appendage a semichitinized curved hook that is swollen basally, blackened at the acute tip; inner pleural appendage irregularly compressed into a flattened blade whose cephalic margin is produced into two short blackened points with a narrow rounded notch between them. Eighth sternite on the caudal margin with a large flattened concave appendage that is almost bifid medially by a deep notch, the surface with a dense white pubescence, on the margin a long spine.

Habitat: Panama (Darien).

Holotype, ♂, Rio Chico, Department of Panama, near the mouth of the Rio Porcona, August 4, 1918 (Axel Olsson).

*T. spinicauda* belongs to the group of *T. longitarsis* Macq. and is to be confused only with *T. appendens* (End.) of Ecuador and *T. tabida* End. of Peru. The latter species has the antennæ bicolorous, the legs brownish-yellow and the eighth tergite black. *T. appendens* has the male antennæ nearly as long as the body (length 9 mm.; antenna 8.5 mm.), the legs brownish-yellow and the wing-pattern and venation distinct. The similar *T. aymara* Alex. (Bolivia) and *T. parishi* Alex. (Brazil) are readily distinguished by the male hypopygia. *T. longitarsis* Macq. has a large brown mark near the middle of the wing-disk on vein *Cu*.

#### EXPLANATION OF PLATE XVII.

- Fig. 1. Wing of *Geranomyia nigripleura* new species.
- Fig. 2. Wing of *Peripheroptera subandina* new species.
- Fig. 3. Wing of *Dicranomyia jorgenseni* new species.
- Fig. 4. Wing of *Rhamphidia albitarsis fuscipes* new subspecies.
- Fig. 5. Wing of *Rhamphidia albitarsis fumipennis* new subspecies.
- Fig. 6. Wing of *Limnophila* (*Limnophilella*) *victor* new species.
- Fig. 7. Wing of *Eriocera argentina* new species.
- Fig. 8. Wing of *Eriocera columbiana* new species.
- Fig. 9. Wing of *Penthoptera sancta-mariae* new species.
- Fig. 10. Wing of *Gonomyia* (*Gonomyella*) *subcostata* new species.



Fig. 11. Wing of *Gonomyia (Leiponeura) gladiator* new species.

Fig. 12. Wing of *Gnophomyia olssoni* new species.

Fig. 13. Wing of *Gnophomyia lachrymosa* new species.

Fig. 14. Wing of *Gnophomyia laticincta* new species.

Fig. 15. Wing of *Trentepohlia (Paramongoma) sororcula* new species.

Fig. 16. Wing of *Tanypremna fuscitarsis* new species.

Sc = subcosta; R = radius; M = media; Cu = cubitus.

---

## OBSERVATIONS ON THE EGG-LAYING OF THE CADDICE-FLY *BRACHYCENTRUS NIGRISOMA* BANKS, AND ON THE HABITS OF THE YOUNG LARVÆ.<sup>1</sup>

BY HELEN E. MURPHY,

ITHACA, N. Y.

In the upland bogs near McLean, New York, there is a tributary of Beaver Creek that flows over a sediment-covered bed well shaded by trees, dashes into the open, over rocks and boulders for about fifty rods, then again disappears into the woods. In this restricted open area the square built cases of the larva of the caddis-fly are found attached to the upper surfaces of the stones in mid stream. Mr. J. T. Lloyd studied them here, and published a preliminary account of the habits of this species, with a partial life-history in 1915.<sup>2</sup> It is the purpose of this paper to record some further observations, especially upon oviposition and the habits of the young larvæ.

During the latter part of May, generally on the late afternoon of a clear day, females come out from hiding in crevices of the bark of the trees. Swiftly and warily they fly along the bank, just above the surface of the water. Then one will enter the water, and while

<sup>1</sup> Of the European species, Herr Georg Ulmer in "Die Süßwasser Fauna Deutschlands; Trichoptera," describes the immature stages of *B. subnubilis* and records that it inhabits sluggish waters, rich in plants. The larvæ build square cases at first, but older cases are often found with the corners rounded. The pupal cases are cylindrical. *B. montanus* inhabits rocky streams. The cases are regularly four-sided, made of small slender pieces of sticks, leaves, and bark. The pupal cases are the same kind.

<sup>2</sup> Pomona, Jour. of Ent., 7: 81-86, plate.